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Patentanmeldung Nr. Patent application No. Demande de brevet n°

02075996.5

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Anmeldung Nr:
Application no.: 02075996.5
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Anmelder/Applicant(s)/Demandeur(s):

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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se référer à la description.)

Distant change of account and authentication algorithm for a multi-subscribers
card

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s)
revendiquée(s)
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G06F1/00

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AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

Title of Invention: Distant change of account and authentication algorithm for a multi-subscribers card.

Description

1 What is the field of the invention?

The invention can be applied to allow operators to execute a soft migration of their AuC equipment and SIM Cards from the use of an algorithm version (for example the A3A8 algorithm) to a new one.

2 What is already known?

At this time, when an operator wants to update an AuC (Authentication Center), he needs to buy a new one with the wanted functionalities, then to transfer all the couples [IMSI, Ki] from the old one to the new one or to update the software version.

AuC is a part of the HLR in charge of Authentication.

IMSI is the International Mobile Subscriber Identity; Ki is an authentication key.

In case of partial migration, this also changes the MSISDN (Mobile Station Integrated Service Data Network number, Subscriber's phone number.) of the users because the HLR (Home location Register) comes with the AuC.

In the case of updating from a version of A3A8 algorithm to another one, as the algorithm as to be present in the card, it implies to synchronize the purchase of the AuC with the purchase of new cards.

3 What problem needs to be solved?

Three problems can be identified:

- The synchronization of both purchases.
- The fact that you need a second AuC to upgrade one.
- The user needs a new card and phone number

4 How is the problem solved?

The proposed solution needs the use of a card with two couples [IMSI, Ki]: one linked to the first A3A8 algorithm, the other to the second A3A8 algorithm.
It also needs to have the AuC equipped with the automatic card renewing / replacement function.

The operator store in his AuC two couples [IMSI, Ki] for the same MSISDN, one linked to the first A3A8 algorithm, the other to the second A3A8 algorithm.

The problem is solved when using a special OTA command or group of commands that will make the card change its account, while the [IMSI, Ki] is also switched inside the AuC.
This way, the switch between the two algorithms doesn't need another AuC, and it can be done card-by-card if the operator wants, not all at the same time.

5 Detailed description of a practical example

When the migration has to be done, the operator sends a special command (for example an OTA (Over The Air) Command) that will activate a flag on the card to tell it to switch from one [IMSI, Ki] to the other on the next:

- OFF/ON of the card
- Refresh

- o SimInit
- o Reset
- o Full File Change Notification
- o File Change Notification

At the first authentication with the new account, and then the new algorithm, the card sends the authentication request to the AuC.

The AuC, equipped with the automatic card renewing / replacement function, automatically switches to the new algorithm and authenticates the card and the new account.

The old [IMSI, Ki] becomes useless and may be then erased to free memory space in the database.

- the AuC being equipped with an automatic card renewing / replacement function,

the migration consisting in sending a special command that will activate a flag on the card to tell it to switch from one $[IMS, K_i]$ to the other $[IMS, K_i]$.

BEFORE MIGRATION

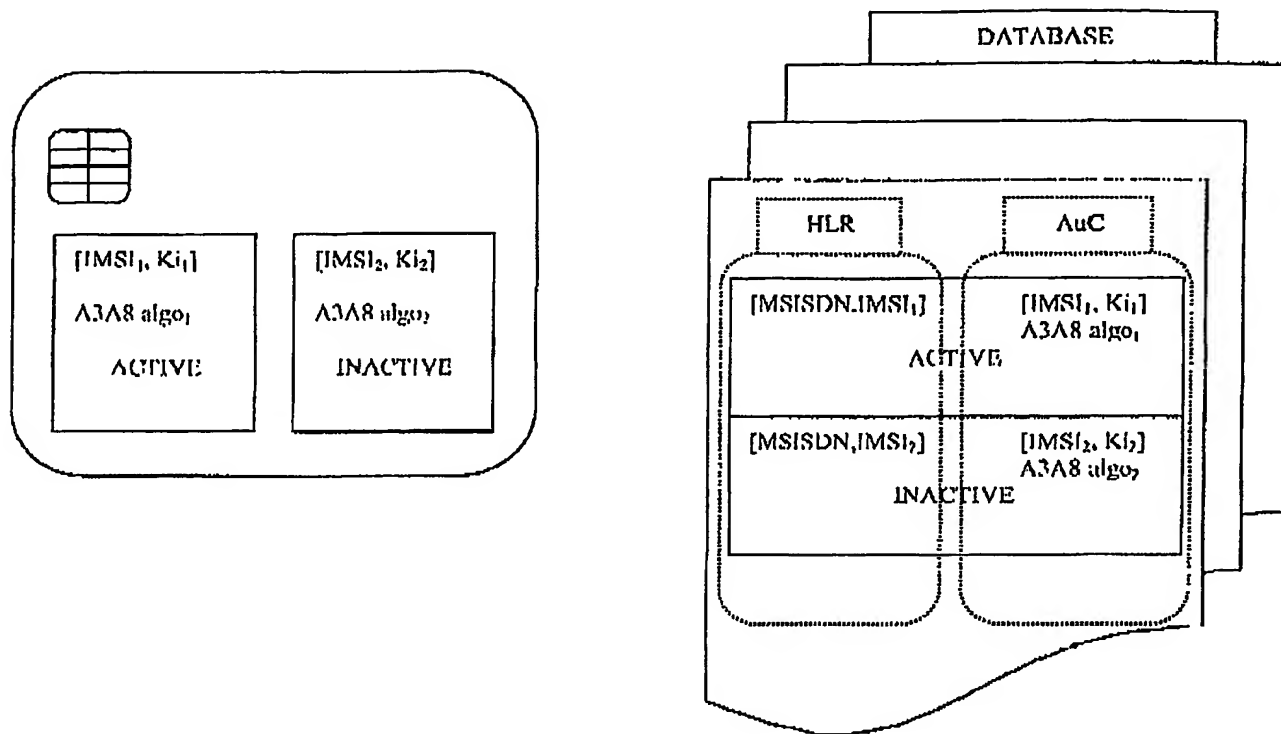


Figure 1

DURING MIGRATION

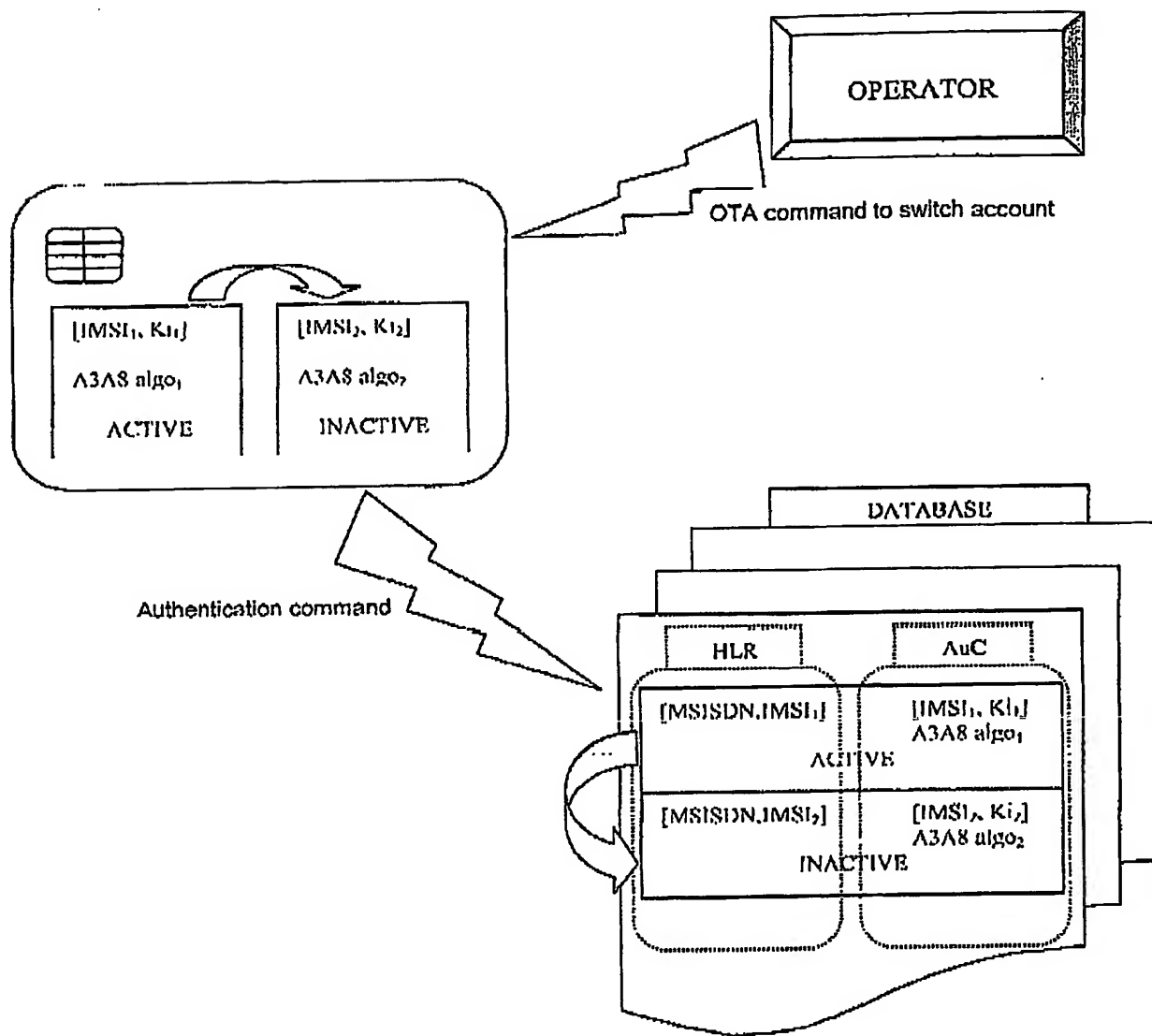


Figure 2

AFTER MIGRATION

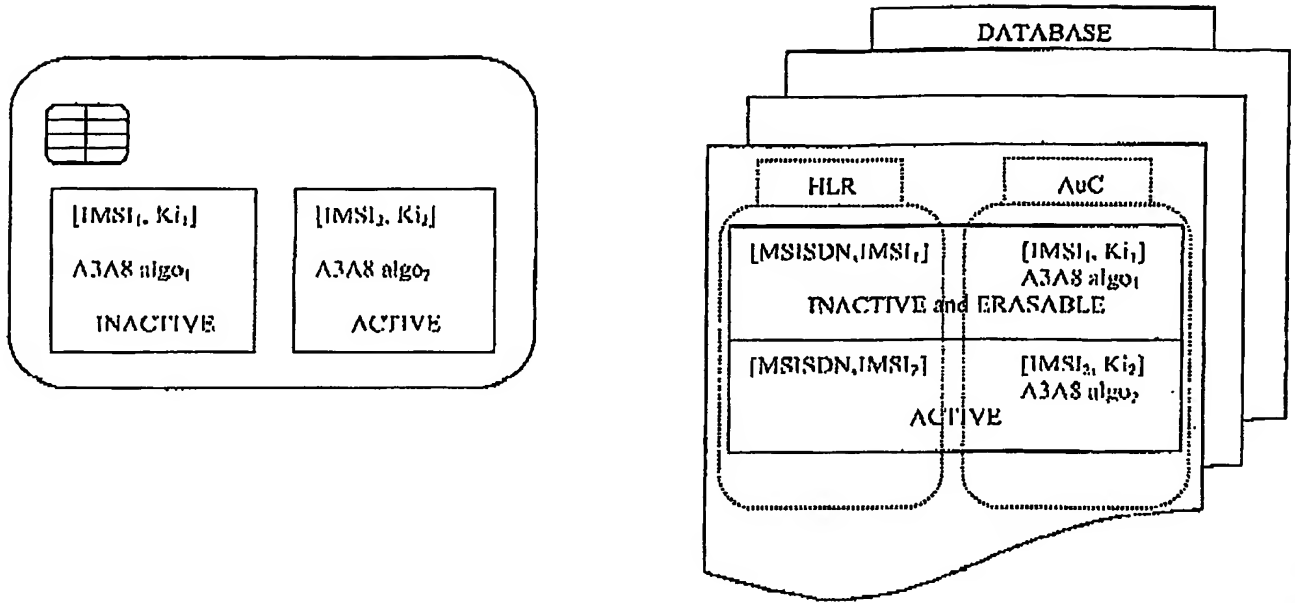


Figure 3

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